

"Express Mail" Mailing No: EV227676824US

PATENT
Case No. 11336-542 (P03002WOV1)

Date of Deposit 30 June 2003

CLAIMS

What is claimed is:

1. A method of developing a surface of an electronic representation of an object, the method comprising:
 - providing an electronic representation of an object;
 - selecting a source texture as a function of the visual appearance of the object;
 - selectively transforming the source texture to form at least part of a complex texture representative of a surface of the object;
 - creating a transformation procedure that reflects the transformation of the source texture;
 - storing the transformation procedure in association with a unique identifier;
 - associating the unique identifier with a surface of the electronic representation of the object; and
 - selectively applying the complex texture to the surface of the electronic representation of the object based on the associated unique identifier.
2. The method of claim 1, where applying the source texture comprises associating a transformation procedure with the surface of the electronic representation of the object, where the transformation procedure is performed to form the complex texture.
3. (Cancelled)
4. The method of claim 3, where selectively applying the complex texture comprises performing the transformation procedure to transform the source texture and form the complex texture on the surface when the electronic representation is displayed.
5. The method of claim 1, where selecting a source texture comprises entering one of a search mode and a library mode to find and select an image file from a source texture category of a library component.

6. The method of claim 1, where selectively transforming comprises manipulating the source texture in a source texture manipulation display to create a source transformation procedure; positioning the source texture that has been
5 manipulated in a complex texture formation display to create a complex transformation procedure; and combining the source transformation procedure and the complex transformation procedure to form a transformation procedure representative of the complex texture.

10 7. The method of claim 6, where manipulating comprises capturing a unique identifier assigned to the source texture in the source transformation procedure.

8. The method of claim 1, further comprising selectively associating a unique identifier of the source texture with the surface of the electronic representation of the
15 object.

9. A method for developing a surface of an electronic representation of an object, the method comprising:
creating a texture library of source textures;
20 assigning unique identifiers to each of the source textures;
storing a transformation procedure in the texture library, where the transformation procedure includes at least one of the unique identifiers, the transformation procedure operable to logically transform at least one of the source textures to form at least part of a complex texture when executed; and
25 associating the transformation procedure with a surface of an electronic representation of an object to texturize the surface.

10. The method of claim 9, further comprising performing the transformation procedure to texturize the surface of the electronic representation with the complex
30 texture.

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11. The method of claim 9, further comprising associating a unique identifier of a source texture with another surface of the electronic representation.
12. The method of claim 9, further comprising the initial act of storing an image file that is an electronic representation of a texture of the object as the source texture.
13. The method of claim 9, further comprising extracting an electronic representation of a texture of the object from an electronic image of the object to create the source texture.
14. The method of claim 9, where storing a transformation procedure comprises creating a source transformation procedure that includes at least one of clipping, colorizing, mirroring or rotating a source texture or combinations thereof.
15. The method of claim 9, where storing a transformation procedure comprises creating a complex transformation procedure that includes at least one of repeating, scaling, positioning or ordering of a source texture or combinations thereof.
16. The method of claim 9, where storing a transformation procedure comprises assigning a unique identifier to the transformation procedure.
17. The method of claim 16, where associating the transformation procedure comprises storing the unique identifier assigned to the transformation procedure in the electronic representation of the object in association with a surface of the electronic representation.
18. A method for developing a surface of an electronic representation of an object, the method comprising:
 - performing a first transformation of a source texture with a source texture manipulation display;
 - capturing the first transformation as instructions in a source transformation procedure;

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performing a second transformation of the source texture with a complex texture formation display;

capturing the second transformation as instructions in a complex transformation procedure; and

identifying the source transformation procedure and the complex transformation procedure with a unique identifier, where the unique identifier is storable in association with a surface of an electronic representation of an object.

19. The method of claim 18, where performing a first transformation comprises selectively clipping, coloring, rotating and mirroring the source texture.

20. The method of claim 18, where performing a second transformation comprises selectively repeating, scaling, positioning and ordering the source texture.

21. The method of claim 18, where identifying the source transformation procedure and the complex transformation procedure comprises combining the source transformation procedure and the complex transformation procedure to form a transformation procedure.

22. The method of claim 18, further comprising cataloging the source transformation procedure and the complex transformation procedure in a complex texture category of a texture library.

23. The method of claim 18, comprising the initial act of identifying the source texture within a texture directory by one of a search mode and a library mode; and selecting the source texture from a source texture category of a texture library.

24. The method of claim 18, where capturing the second transformation comprises locking the source texture to prevent further transformations.

AMENDED SHEET

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25. The method of claim 18, where capturing the first and second transformations comprises including a unique ID of the source texture in the respective source and complex transformation procedures.

26. The method of claim 18, further comprising storing the source and complex transformation procedures in a local texture library; and synchronizing the local texture library with a master texture library.

27. The method of claim 26, where synchronizing the local texture library and the master texture library comprises identifying inconsistencies between attributes associated with the source and complex transformation procedures stored in the local texture library and attributes associated with the same source and complex transformation procedures in the master texture library as a function of the unique identifier.

28. The method of claim 26, where identifying the source transformation procedure and the complex transformation procedure with a unique identifier comprises selecting the unique identifier from a group of unique identifiers that have been allocated from the master texture library.

29. A texturizing system for developing a surface of an electronic representation of an object, the texturizing system comprising:

a computer;

a library component operable in the computer, where the library component includes a source texture having a unique identifier; and

a graphical user interface component in communication with the library component, where the graphical user interface component is operable to develop a transformation procedure to transform the source texture to form at least part of a complex texture,

where the transformation procedure is a set of executable instructions that can be associated with a surface of an electronic representation of an object and executed to provide texturization of the surface when the electronic representation is displayed.

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30. The texturizing system of claim 29, where the transformation procedure is storable in the library component with a unique identifier.

31. The texturizing system of claim 29, where the transformation procedure is a set of executable instructions that include a unique identifier of the source texture.

32. The texturizing system of claim 29, where the library component includes a source texture category operable to store the source texture, a complex texture category operable to store the transformation procedure and a texture directory to display the contents of the source texture category and the complex texture category in a tree structure.

33. The texturizing system of claim 29, where the graphical user interface component includes a source texture operation component and a complex texture composition component, and the transformation procedure comprises a source transformation procedure created with the source texture operation component, and a complex transformation procedure created with the complex texture composition component.

34. The texturizing system of claim 33, where the source transformation procedure is created with a source texture manipulation display provided by the source texture operation component and the complex transformation procedure is formed with a complex texture formation display provided by the complex texture composition component.

35. The texturizing system of claim 29, where the graphical user interface component includes a texture selection component, the texture selection component having a library mode and a search mode to identify the source texture used in development of the transformation procedure.

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36. The texturizing system of claim 29, where the computer comprises a server computer having a master texture library and a client computer having a local texture library, the library component operable to synchronize the master texture library of the server computer with the local texture library of the client computer when the client computer connects to the server computer.

37. A texturizing system for developing a surface of an electronic representation of an object, the texturizing system comprising:

a computer;

a library component operable in the computer, the library component having a source texture category and a complex texture category, where the library component is operable to categorize a source texture in the source texture category with a unique identifier;

a source texture operation component operable to form a source transformation procedure from at least one transformation performed on the source texture; and

a complex texture composition component operable to form a complex transformation procedure representative of a complex texture, where the complex transformation procedure and the source transformation procedure are combined to form a transformation procedure that is categorized in the complex texture category with a unique identifier,

where the unique identifier of the source texture and the unique identifier of the transformation procedure can be selectively associated with a surface of an electronic representation of an object to texturize the surface.

38. The texturizing system of claim 37, where the source texture comprises an image file.

39. The texturizing system of claim 37, where the transformation procedure includes the unique identifier of the source texture.

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40. The texturizing system of claim 37, where the unique identifier of the source texture and the unique identifier of the transformation procedure are storeable as part of the electronic representation of the object.

41. The texturizing system of claim 37, where the complex texture is storable as an image file, the image file capable of being categorized as a source texture by assignment of a unique identifier.

42. The texturizing system of claim 37, where the electronic representation of the object is a three-dimensional electronic image.

43. The texturizing system of claim 37, where the electronic representation of the object is a three-dimensional electronic model.

44. A texturizing system for developing a surface of an electronic representation of an object, the texturizing system comprising:

- a memory device;

- an electronic representation of an object stored in the memory device;

- instructions stored in the memory device to select a source texture;

- instructions stored in the memory device to perform a transformation procedure to form a complex texture with the source texture;

- instructions stored in the memory device to capture the transformation procedure as executable instructions; and

- instructions stored in the memory device to execute the transformation procedure to apply the complex texture to a surface of the electronic representation when the electronic representation is displayed.

45. The texturizing system of claim 44, where instructions stored in the memory device to execute the transformation procedure to apply the complex texture comprise instructions stored in the memory device to assign a unique identifier to the transformation procedure and instructions stored in the memory device to associate the unique identifier with the surface.

46. (Cancelled)

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47. The texturizing system of claim 44, further comprising instructions stored in the memory device to apply the source texture to a surface of the object.

48. The texturizing system of claim 44, where instructions in the memory device to select a source texture comprises instructions stored in the memory device to access one of a search mode and a library mode to identify the source texture.

49. The texturizing system of claim 44, further comprising instructions stored in the memory device to save the complex texture as a source texture.

50. The texturizing system of claim 44, further comprising instructions stored in the memory device to under lay a background image within the complex texture.

51. A computer readable medium having stored thereon a data structure comprising:

- a first field containing a unique identifier;
- a second field containing a name of an image file when the data structure represents a source texture; and
- a third field containing a unique identifier of a transformation procedure when the data structure represents a complex texture.

52. The computer readable medium of claim 51, where the transformation procedure is a set of executable instructions that are executed to transform the source texture to form the complex texture.